



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/928,745

08/14/2001

Christopher M. Skarica

57983.000039

8665

7590

07/13/2005

Thomas E. Anderson

Hunton & Williams

1900 K Street, N.W.

Washington, DC 20006-1109

EXAMINER

SINGH, DALZID E

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/928,745

Applicant(s)

SKARICA ET AL.

Examiner

Dalzid Singh

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-17, 31 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bears (US Patent No. 5,349,457).

Regarding claim 1, Bears discloses fiber terminal (34), as shown in Fig. 3, comprising:

fiber and power access ports for receiving and distributing physical signal and power connection media (fiber access port (40) and power access from power pedestal (46));

dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module (in Fig. 8, Bears shows switch modules (dual plane switch), therefore it would have been obvious to label the dual switch as a first switch and a second switch; the switch transmit and received signal from subscriber modules (Tx/Rx) on the right-hand side); and,

dual optical trunking modules coupled to transport switched signals between the dual optical switch fabric modules and a service provider optical network, the optical trunking modules providing optical transport distance and redundancy and include a first

trunking module and a second trunking module (as shown in Fig. 8, Bears shows that the switch modules are coupled to trunking modules, such as plurality of Tx and Rx, on the left-hand side).

As shown in Fig. 3, Bears shows that the dual switch within the fiber terminal (as shown in Fig. 8) can be coupled to the subscriber unit (38) for transmitting and receiving signal. Bears differs from the claimed invention in that Bears does not specifically disclose at least one service signal port. However, it is well known that remote devices, particularly that which provide services to customers or subscribers, requires monitoring and service over time. Therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide service port in order to maintain and/or upgrade the terminal.

Regarding claim 2, as shown in Fig. 8, Bears shows that the fiber terminal is coupled to the optical line cards (32) through fiber optical cable and differs from this claim in that Bears does not specifically disclose the dual optical trunking modules each comprise one or more 1 gigabit Ethernet trunk optic cards or one or more 10 gigabit Ethernet optics cards. However, it well known that since the cards are coupled to the fiber optical cable, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide 1 gigabit or 10 gigabits optical cards in order to communicate data at high speed.

Regarding claim 3, as discussed above, Bears discloses dual plane switch, and differs from the claimed invention in that Bears does not specifically disclose that the dual optical switch fabric modules each comprise 32 Gbps or higher switch fabrics.

However, since the dual switch fabric is coupled to the fiber optical cable, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide switch fabric modules comprise of 32Gbps or higher in order to route the signal at a high speed.

Regarding claim 4, Bears does not specifically disclose that the switch fabric modules support at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring. However, since the communication system of Bears provides services to subscribers and is coupled to various networks, therefore it would have been obvious that the switch fabric module support Ethernet switching in order to support Ethernet networks.

Regarding claim 5, in Fig. 8, Bears shows that the terminal comprised a housing (it would have been obvious that the housing is environmentally hardened in order to protect elements within the housing).

Regarding claim 6, as shown in Fig. 8, Bears shows that the dual optical trunking modules (Tx and Rx), the dual optical switch fabric modules (dual plane switch), and other component parts of the modular switch, including subscriber service modules (Tx/Rx on the right-hand side) and power supplies (voltage conversion (48V)), comprise environmentally hardened optical and electrical components (all the elements are enclosed within the housing).

Regarding claim 7, Bears disclose that the elements are placed within the housing as discussed above and differ from the claimed invention in that Bears does not specifically disclose that the optical and electrical components have an operating

Art Unit: 2633

temperature range of about -40 degrees Celsius to 60 degrees Celsius. However, since the housing and the elements within are placed outside, it would have been obvious that the elements would be able to withstand temperature fluctuation.

Regarding claims 8, as shown in Fig. 3, Bears shows the fiber terminal is coupled to the subscriber, therefore there must be at least one subscriber service module and a plurality of subscriber service module slots, the at least one subscriber service module interfacing between one or more subscriber end points and the dual optical switch fabric modules and comprising at least one subscriber signal port, each subscriber service module slot configured to receive one of the at least one subscriber service module (in Fig. 8, the fiber terminal shows dual switch which is also coupled to the subscriber though (Tx/Rx) on the right-hand side).

Regarding claim 9, as shown in Fig. 8, Bears shows that the terminal comprises a plurality of subscriber service modules (Tx/Rx on the right-hand side), with each subscriber service module slot receiving a different subscriber service module.

Regarding claim 10, in Fig. 3, Bears shows that the terminal is coupled to the subscriber and differs from the claimed invention in that Bears does not specifically disclose that subscriber service modules collectively provide access to ninety-six homes. However, in another embodiment Bears shows that the terminal (FST) is coupled to plurality of subscriber premises (SP) (see Fig. 7). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide access to plurality of homes in a community which may have ninety-six homes.

Regarding claim 11, as shown in Fig. 8, the subscriber service module (Tx/Rx on the right-hand side) is coupled to one or both of the dual optical trunking modules (Tx and Rx on the left-hand side), via one or both of the dual optical switch fabric modules (dual plane switch), providing network connectivity for subscriber signal ports contained in the subscriber service module .

Regarding claim 12, as shown in Fig. 8, the subscriber service module (Tx/Rx on the right-hand side) comprises multiple single mode, single fiber, environmentally hardened optical transceiver serving as subscriber signal ports (there are multiple fibers coupled to the transceivers (Tx/Rx); it would have been obvious to provide optical transceiver as environmentally hardened in order to protect the connection and/or fiber).

Regarding claim 13, Bears shows plurality of optical trunking as shown in Fig. 8, and differ from the claimed invention in that Bears does not specifically disclose that the first optical trunking module transports signals in one direction and the second optical trunking module transports signals in a different direction, each optical trunking module using one or more fibers. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide the optical trunking at different directions in order to route the signal back to source or alternate path in the event of failure.

Regarding claim 14, as shown in Fig. 8 and discussed in col. 8, lines 6-16 and lines 30-40, Bears discloses that the optical trunk connections comprise one of a layer 2 link aggregation and a layer 3 link aggregation to enable both route and equipment protection (layer 2 and layer 3 are various link connections).

Regarding claim 15, Bears differs from the claimed invention in that Bears does not specifically disclose that the fiber access ports used by the dual optical trunking modules receive signals from and transmit signals to a ring network architecture. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to coupled the fiber access port to a ring network architecture in order to transmit and received signal from other network.

Regarding claim 16, as shown in Fig. 7, Bears shows a the subscriber access comprises a point to point connection.

Regarding claim 17, as shown in Fig. 8, Bears shows that the dual optical switch fabric modules are coupled to transmit signals to and receive signals from at least one of the dual optical trunking modules, the dual optical switch fabric modules further providing at least one of signal switching, routing, traffic aggregation, and redundancy (see col. 8, lines 6-16 and lines 30-40).

Regarding claim 31, Bears discloses fiber terminal (34), as shown in Fig. 3, comprising:

receiving a signal in one of two optical trunking modules (as shown in Fig. 8, the signal is received by Rx on the left-hand side);

transmitting the received signal to one or both dual switch fabric modules (dual plane switch);

optically switching and aggregating the received signal (the signal is switched by the dual switch);



providing quality of service for the switched signal (the signal is processed by data recovery circuits, processor and OAM for better quality);

transmitting the switched signal to subscriber service modules (the signal transmitted to subscriber service ports (Tx/Rx) on the right hand side coupled to the subscriber); and

transmitting the switched to a subscriber fiber access box of a destination (fiber access (40) is shown on Fig. 3, located on subscriber premise).

As shown in Fig. 3, Bears shows that the dual switch within the fiber terminal (as shown in Fig. 8) can be coupled to the subscriber unit (38) for transmitting and receiving signal. Bears differs from the claimed invention in that Bears does not specifically disclose at least one service signal port. However, it is well known that remote devices, particularly that which provide services to customers or subscribers, requires monitoring and service over time. Therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide service port in order to maintain and/or upgrade the terminal.

Regarding claim 33, as shown in Fig. 3, Bears shows that the fiber access box (40) comprises an optical to electrical conversion unit (44) (see col. 5, lines 48-51).

Regarding claim 34, in Fig. 7, Bears shows plurality subscribers (SP) coupled to a fiber terminal (FST). Fig. 8 shows that the terminal comprises of plurality of fibers on the right-hand side, which is coupled to the subscriber's fiber access box at the subscriber end (see Fig. 3). Bears differs from the claimed invention in that Bears does not specifically disclose fiber splice cabinet coupled between the modular switch and

one or more fiber access boxes. However, is well known that since the fiber is distributed over plurality of subscriber, therefore it would have been obvious that there exist a fiber splice to divide the signal to plurality of subscribers. Furthermore, it would have been obvious to housed the fiber access box in a pedestal.

Regarding claims 35 and 36, as shown in Fig. 3, Bears shows transmitting the switched signal to the subscriber fiber access box comprises transmitting the switched signal to one of a plurality of subscriber fiber access boxes. In view of claim 21, it would have been obvious to provide pedestal and transmit the signal through the pedestal in order to split the signal into plurality of signal.

3. Claims 18-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bears (US Patent No. 5,349,457) in view of Kimbrough et al (US Patent No. 6,362,908).

Regarding claim 18, Bears discloses communication system, shown in Fig. 2, comprising:

- a router (10) to route signal;

- an environmentally hardened modular switch ((14) or fiber terminal) coupled to the router and subscriber end points (18), the modular switch receiving signals from the router and the subscriber end points to provide point to point subscriber access; and

- a fiber access box at a destination coupled to the modular switch with the fiber access box receiving signals from and transmitting signals to the modular switch (in Fig.

Art Unit: 2633

3, Bears shows fiber access box (40) coupled to the modular switch (fiber terminal) for transmitting and receiving signal);

wherein the modular switch comprises dual optical trunking modules (Tx and Rx on the left-hand side), dual optical switch fabric modules (dual plane switch), and a plurality of subscriber service modules (Tx/Rx on the right-hand side), the dual optical trunking modules coupled to at least one of the dual switch fabric modules and the dual switch fabric modules coupled to the subscriber service modules (see also claim 17).

Bears differs from the claimed invention in that Bears does not specifically disclose that there exist a network transmitting a signal and coupled to the router or the central office for transmitting and route the signal. However, it is well known that networks are coupled to the router or central office. Kimbrough et al is cited to show such well known concept. In Figs. 1 and 3, Kimbrough et al show that the central office is coupled to various networks for transmitting and receiving signal. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to couple the router (central office) of Bears to various networks as taught by Kimbrough et al. One of ordinary skill in the art would have been motivated to do such in order to provide various services to the subscribers or customers.

Regarding claim 19, Bears disclosed that the modular switch (fiber terminal as shown in Fig. 8) performs at least one of fully redundant switching, aggregation, quality of service classification, and signal transport between the subscriber and the service provider network (see col. 8, lines 6-16 and lines 30-40).

Regarding claim 20, Bears differs from the claimed invention in that Bears does not specifically disclose that the router and the modular switch are coupled through ring architectures. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to couple the router and the modular switch through ring architectures in order to transmit and receive signal from other network.

Regarding claim 21, Bears differs from the claimed invention in that Bears does not specifically disclose that one or more pedestals coupled between the modular switch and the fiber access box, the pedestal providing a fiber breakout point coupling the fiber access box to the modular switch. However, in Fig. 1 or Fig. 6, Bears shows pedestal (or fiber splice) providing a fiber breakout point. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide pedestal in order to split the signal to various terminals.

Regarding claim 22 (as far as understood), as shown in Fig. 3, Bears shows a fiber distribution device (36) coupled to the modular switch (34).

Regarding claim 23, as shown in Fig. 3, Bears shows that the fiber access box (40) comprises an optical to electrical conversion unit (44) (see col. 5, lines 48-51).

Regarding claim 24, Bears differs from this claim in that Bears does not specifically disclose that the fiber access box comprises a voice over Internet protocol media gateway. However, as discussed above by Kimbrough et al, since the central office can be coupled to various network of services, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide voice over internet protocol service and provide corresponding hardware and

software gateway at the fiber access terminal. One of the advantages of doing such is for ease of management since data and voice is transmitted in one network.

Regarding claim 25, in view of the above, as shown in Fig. 3, Kimbrough et al shows intelligent home networking equipment coupled to the fiber access box (such as the ONU), the home networking equipment located within a subscriber premise.

Regarding claim 26, in Fig. 7, Bears shows plurality of fiber access boxes (Fig. 7 shows plurality of subscriber premises which each has fiber access box).

Regarding claim 27, in Fig. 7, Bears shows plurality subscribers (SP) coupled to a fiber terminal (FST). Fig. 8 shows that the terminal comprises of plurality of fibers on the right-hand side, which is coupled to the subscriber's fiber access box at the subscriber end (see Fig. 3). Bears differs from the claimed invention in that Bears does not specifically disclose an environmentally hardened fiber splice cabinet coupled between the modular switch and one or more fiber access boxes. However, is well known that since the fiber is distributed over plurality of subscriber, therefore it would have been obvious that there exist a fiber splice to divide the signal to plurality of subscribers. Furthermore, it would have been obvious to provide environmentally hardened fiber splice cabinet in order to protect the splice fiber from environmental damage.

Regarding claims 28 and 29, in view of the rejection above, further, it would have been obvious that the environmentally hardened fiber splice cabinet includes multiple fiber access ports, accommodating plurality of fibers, for one or more fiber trunk cables

Art Unit: 2633

and one or more subscriber service cables in order to provide access to plurality of subscriber.

Regarding claim 30, as discussed above, Kimbrough et al show that the router (central office) comprises an internet protocol router (since internet network (18) is coupled to the router, therefore it would have been obvious to provide internet router to route internet protocol signals).

Regarding claim 32, in view of the rejection of claim 18, the combination of Bears and Kimbrough et al discloses receiving the signal from a network and routing the signal to the switch (the network is coupled to the router of central office, shown in Fig. 3 of Kimbrough et al; the switch within the fiber service terminal (FST) is coupled to the central office as shown Fig. 2 of Bears; therefore the signal from the switch receives signal from the network).

### ***Response to Arguments***

4. Applicant's arguments filed 12 April 2005 have been fully considered but they are not persuasive.

Applicant argues that the reference "...Bears fails to claim, disclose, or even suggest dual optical switch fabric modules..." However, in col. 8, lines 10-12, Bears disclose that the dual Tx/Rx plane switch reroute the multiplexed optical signals. Since the dual Tx/Rx plane switch reroute optical signal, therefore it would have been obvious that the dual Tx/Rx plane switch is a dual Tx/Rx optical switch.

Furthermore, applicant indicates that the Bears reference may not be a proper prior art reference for use against the claims of the present application. However, since the Bears reference was not used as prior art under 102(e), (f) or (g), therefore, the reference is qualified as prior art under 35 U.S.C. 103(c). See MPEP 706.02(a)IIC.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

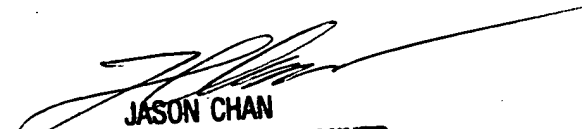
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS  
June 28, 2005

  
JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600